the strata of Mount Sela in Java. *Prionastræa tesserifera* Ehrbg. exists at present only in the Red sea, but the remaining species are found in the sea of Blitong. The strata are determined to be posttertiary.

GEOLOGICAL NEWS.—Professor Marsh shows that the neural cavity of the sacrum in *Hypsirhophus (Stegosaurus) ungulatus* is ten times the size of the brain case of the skull of the same animal.——In the Acts of the Tuscan Academy of Sciences for November, 1880, M. De Stefani publishes a systematic table of the geological formations of the Apuan Alps. The principal formations are the Eocene, the Lias and the Trias.——The following statistics of the output of crude fertilizers from the beds of Beaufort and Charleston, South Carolina, is furnished by Mr. E. Willis: 1875, 122,790 tons; 1876, 132,626 tons; 1877, 163,220 tons; 1878, 210,328 tons; 1879, 199,566 tons; 1880, 190,763 tons; 1881 to Feb. 1st, 173,168 tons.——The United States Geological Survey of the Territories under Dr. Hayden, in closing its work, has just issued three geological maps of the adjacent parts of Wyoming, Utah, Idaho and Montana. They represent the regions of Bear lake, the water shed of the Snake and Green rivers, and the Yellowstone Lake region. They are beautifully executed.

## GEOGRAPHY AND TRAVELS.[1]

FRANZ-JOSEF LAND REVISITED.—The Arctic explorer, Mr. B. Leigh Smith, sailed in the steam yacht *Eira* from Peterhead, Scotland, on the 19th of June, 1880, on a voyage of discovery. We condense from reports in the London *Times* and *Illustrated London News* the following account of his very successful trip.

The *Eira* is a steam vessel of three hundred and fifty tons gross, measuring one hundred and thirty-five feet in length by twenty-five feet of beam and carried a crew of twenty-five all told.

The island of Jan Mayen was reached about June 29th, and was found almost encircled with ice. Sailing along the edge of the main pack they endeavored to reach the east coast of Greenland, near Cape Bismarck, the farthest point reached by the Germans. On the 2d and 3d of July, they got among the bladder-nosed seals and shot over three hundred of these animals. They worked in towards the west until the 9th in 75° 40′ latitude; but the weather was foggy, and all the time the ice was getting closer and heavier, some of the floes met with being very large. On the 9th nothing could be seen from the crow's nest but ice closely packed, and the idea of going further west had to be given up. It was very discouraging to have to work their way back again; but it had to be done. They reached the open sea again on the 11th.

They steered northward again on the 13th, and on the 16th

[1] Edited by ELLIS H. YARNALL, Philadelphia.

they came upon block ice in 75° 50′ latitude and about 5° east longitude, and had to go eastwards towards Cloven Point—a well-known landmark to the north-west of Spitzbergen. Passing that point they anchored to a floe of land ice off Welcome Point on the 18th. The intention at this point was to steer north; but after more battling with the ice they had again to bout ship and make the best of their way to the open sea. It is mentioned as an unusual circumstance that the islands known as the Norways and Fair Haven were closed with ice. They anchored at the head of Smeerenburg Bay and took in water on the 20th; and, having sailed at once, were taken in a strong gale and had to seek shelter in Magdalen Bay. They lay there three days. The gale over, they sailed southward, and cleared the South Cape of Spitzbergen at midnight on the 30th of July, and next day came upon loose floating ice, which, as they advanced, got much closer; and about 9 P. M., when within twenty-four miles of Hope Island, they had to take a south-westerly course to get clear of the ice. They reached a point 76° latitude and 25° longitude, and wanted to work northward after rounding the ice towards Wiches or King Charles Land, but finding this impossible, they took a north-easterly course with the idea of getting to Franz-Josef Land. They reached the pack ice on the 6th of August in 77° 14′ lat., and the course had again to be changed. Thence they continued in a north-easterly course, leaving the ice to the west, until the 8th, when they reached 79° 4′ lat. and 45° 38′ east long., and met with ice again. From this point they took a northerly course, and encountered very misty weather. On August 10 they reached 79° 40′ lat. and about 46° 50′ east long.—the farthest north point yet reached in this direction. Nothing could be seen but ice in very large and heavy floes, although it was expected that land would have been in sight. They returned in the afternoon with the intention of making for Franz-Joseph Land, and after getting clear on the 11th were caught in a strong gale and driven south as far as 78° 17′ lat., and 46° 19′ east long. From this point they steamed right up, and on the 14th, at 8 A. M., they sighted the land. In the afternoon they anchored to a land floe, attached to an island off the mainland—some one and a half miles long. Here they found large numbers of walruses, and that evening the party shot no fewer than seventeen of them.

Next day they had to shift on account of the drifting of the ice, and in the afternoon anchored to a floe some two miles long at a distance of ten miles from the land. Far "inland" they found an enormous tree with branches and roots apparently complete as it had been torn out of the ground. It is a common thing to find driftwood in these regions, but an entire tree is a rare sight. It is likely that the tree was a Siberian larch, and that it had been washed down by some of the Siberian rivers. On the 16th they came upon another island, on which they landed, and erected a

staff on a cairn, in the center of which they left a record. On these islands a number of curious specimens were found. The last Dutch expedition sighted land westward of this, and called it Barents Hook. This point was also seen by Mr. Smith, and the *Eira* was steered towards the land. They passed the point close to the land in foggy weather. Early one morning they landed on the island some twenty miles from the easternmost point, and found luxuriant vegetation. While off this island they sounded and found the average depth to be from fifteen to twenty fathoms about a mile off the coast.

Very large icebergs were seen quite unlike those met with in Baffin's Bay. The Franz-Josef Land iceberg is a vast mass from one hundred and fifty feet to two hundred and fifty feet high and of great extent, with a perfectly level top. Breaking off from the glaciers which line the coast, these do not float southwards, and the direction of their drift is one of the problems which are waiting for solution.

The new country was forbidding enough. It was covered with a glacier extending down to the sea. Even the off-lying islands had their caps, and the land was only visible at long intervals, in black precipitous masses, rising up between the icy expanses; yet animal life was abundant. Two right whales were seen; there were great numbers of walrus and seals, and the ivory gulls were breeding on one of the islands.

At noon on the 18th they discovered a new harbor, which they had no hesitation in naming Eira Harbor, after their vessel. It is formed by two islands, and affords good anchorage of from five to seven fathoms. It is well sheltered from all sides. It lies in 80° 5′ 25″ north latitude, and about 48° 50′ east longitude.

Here the lofty cliffs formed a vast amphitheater, and below there was a flat plain where many hyperborean plants were growing. But the surrounding scenery was wild and desolate in the extreme. Nearly the whole coast was occupied by glacier after glacier rolling down to the sea, with black headlands abruptly rising through the ice at long intervals. The great size of the icebergs and the extent of glacier are indications that Franz-Josef Land is of vast extent.

This harbor was made a rendezvous, from which, the next few days, numerous trips were made up the numerous fjords which pierce the mainland to the north and north-west. From the point named by the Dutch, Barents Hook, they traced the land westward some 110 miles, and from the extreme north-west point reached sighted land 40 miles further to the north-west. They found that this land was divided from the newly-discovered islands by a sound, which seems to be an extension of Markham's Sound. Lying in this hitherto unexplored tract of sea they discovered seven small islands, each measuring four to five miles long, and four larger islands—these latter being in the vicinity of Eira Harbor

—the largest from eighteen to twenty miles long, and the smallest from six to seven miles long. They are all covered with glaciers and snowfields, with bluff, black headlands on the southern exposures, whereon was vegetation. A large quantity of Arctic flowers and other specimens was collected and brought home. On one of the islands close to the harbor were hills 1200 feet above the level of the sea, but large tracts of flats were seen stretching from the foot of the hills.

The final trip from Eira Harbor was made on August 24, and it was on that day that they reached the most northerly point yet attained in that direction—80° 20′ north latitude, and about 40° east longitude. From that point they could see land to the north-west, some 40 miles off, and it was supposed that this was but a continuance of the same coast line. This they intended to follow up, but they had again to give up the attempt in consequence of the ice driving along the shore and carrying the ship along with it. Mr. Leigh Smith's opinion is that, whether this land extends in a continuous line north-west or forms the outline of separate islands, it forms a very good basis whence to prosecute researches further northward. When they found further progress impossible they returned, and experienced very bad weather.

They made for Eira Harbor again, but found it full of loose ice. Proceeding eastward, they anchored in a small bay to the west of Barent's Hook. From that point they steamed south a little to clear a large quantity of ice that had come out of the fjords, and on the 30th of August they found themselves close to Cape Tegetthoff, which had been discovered by the Austrian expedition in 1873. In that expedition their vessel, the *Tegetthoff*, was abandoned, and the explorers persevered in their mission by means of sledges; but though they succeeded in establishing the existence of the land, they had to return and make for Nova Zembla in a boat. Mr. Smith made a search for any traces of the abandoned vessel, but found nothing except a "can" on Wilczek Island. They found fast ice between Hall Island and Salm Island, and also between the latter island and Lamont Island, so that there was no means of getting out to the east or north-east, and as the ice was coming down they resolved to try to cut across by Spitzbergen to Wiches Land, or, as otherwise called, King Charles Land. In this endeavor their common enemy, the ice, confronted them and compelled them to alter their course. They sailed close to the edge of the ice as far as 75½° north and 46½° east before they could get west. They reached Hope Island on September 10, and again endeavored to work northwards up the east coast of Spitzbergen, but on the 11th the weather became very rough, and for three days the ship was tossed about in strong gales. They encountered numerous small icebergs. Seeing that nothing could be done in this direction—a pack of ice being discernible in the distance—they took a westerly course until they sighted the

South Cape, and then steamed up Storfjord and anchored on the 17th near Genevra Bay. From a hill here they could see the sea to the eastward was clear of block ice, although icebergs could be seen floating about. From this point Wiches Land could be distinctly seen. Hinlopen Straits also seemed to be free of ice. On the 20th they anchored at the entrance of Walter Thymen's Straits—where they took in ballast—which were also clear of ice. On the 22d they were off Wales Point, and from there they sailed with a fair wind to Hammerfest, in Norway, which they reached on the 25th of September.

Careful observations were taken of the temperature and other meteorological tests made. The dredgings secured some very interesting specimens which have been preserved, and a large number of photographs of the places visited were obtained.

Mr. Leigh Smith's voyage is the most successful and important *summer* voyage that has ever been made in the Arctic Regions.

## MICROSCOPY.[1]

PATHOLOGY OF ACUTE DELIRIUM. — Dr. Theodore Deecke, Pathologist to the New York State Lunatic Asylum at Utica, publishes in the *Am. Journ. of Insanity*, a paper on some changes in the ganglion cells of the gray cortex of the brain in acute delirium and their relation to those in acute insanity and in dementia. He disputes the opinion of some authors that the phenomena of delirium, as well as acute insanity itself, are merely functional, and, while associated with grave disturbances of nutrition, and perhaps material alterations in the vascular system, are not connected with any visible alterations in the structure of the nervous elements themselves. The first change noticed in the ganglion cells of the gray cortex of the brain, is the appearance over the body of the cell of a loose, granular covering, of a fatty nature, which must be attributed to a defective focal combustion or oxidation, brought about by an insufficient supply, to the tissues involved, of arterial or oxygenated blood. These conditions occur so frequently in cases of acute delirium, and acute insanity, that there can be no doubt of their pathological character. In more advanced stages of the affection, the structure of the cells becomes involved, and finally almost entirely destroyed, as described at length in the paper itself. The author's method of studying the objects in situ, with as little change as possible from their condition in life, is thus described: "The best results are obtained from the immediate examination of the fresh brain tissue. With a sharp knife, kept wet with water, to which a small quantity of glycerine has been added, or even directly in this liquid, microscopic sections can be made sufficiently thin and transparent to permit the use of all the higher magnifying powers applicable in histological investigations. The liquid in which the sections are

[1] This department is edited by Dr. R. H. Ward, Troy, N. Y.